Complete Summary

GUIDELINE TITLE

Head.

BIBLIOGRAPHIC SOURCE(S)

Work Loss Data Institute. Head. Corpus Christi (TX): Work Loss Data Institute; 2006. 133 p. [152 references]

GUIDELINE STATUS

This is the current release of the guideline.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

On July 19, 2006, the FDA notified healthcare professionals and consumers of new safety information regarding taking medications used to treat migraine headaches (triptans) together with certain types of antidepressant and mood disorder medications, selective serotonin reuptake inhibitors (SSRIs) and selective serotonin/norepinephrine reuptake inhibitors (SNRIs). A life-threatening condition called serotonin syndrome may occur when triptans are used together with a SSRI or a SNRI. See the FDA Web site for more information.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Work-related trauma of the head and headaches, not including stress and mental disorders

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Emergency Medicine
Family Practice
Internal Medicine
Neurology
Surgery

INTENDED USERS

Advanced Practice Nurses
Health Care Providers
Health Plans
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To offer evidence-based step-by-step decision protocols for the assessment and treatment of workers' compensation conditions

TARGET POPULATION

Workers with occupational trauma of the head or headache

INTERVENTIONS AND PRACTICES CONSIDERED

The following interventions/procedures were considered and recommended as indicated in the original guideline document:

1. Acupuncture
2. Anticonvulsants
3. Bed rest
4. Botulinum toxin type A
5. Cognitive skills retraining

6. Cognitive therapy
7. Complementary and alternative medicine (CAM)
8. Craniectomy/craniotomy
9. Cranioplasty
10. Computed tomography (CT)
11. Electroencephalography (EEG) (neurofeedback)
12. Electrodiagnostic studies
13. Fluid resuscitation
14. Glasgow Coma Scale (GCS)
15. Hyperventilation
16. Hypothermia
17. Interdisciplinary rehabilitation programs
18. Lumbar puncture
19. Mannitol
20. Methylphenidate
21. Modified Ashworth Scale (MAS)
22. Magnetic resonance imaging (MRI)
23. Multidisciplinary community rehabilitation
24. Nutrition
25. Physical therapy
26. Relaxation treatment (for migraines)
27. Return to work/activity restrictions
28. Sedation
29. Sleep aids
30. Triptans
31. Vision evaluation
32. X-rays

The following interventions/procedures are under study and are not specifically recommended:

1. Antidepressants
2. Branched-chain amino acids (BCAAs)
3. Cell transplantation therapy
4. Greater occipital nerve block (GONB)
5. Oxygen therapy
6. Positron emission tomography (PET)
7. Wilsonii injecta

The following interventions were considered, but are not recommended:

1. Corticosteroids (for acute traumatic brain injury)
2. Quantitative electroencephalogram (QEEG) (brain mapping)
3. Single Photon Emission Computed Tomography (SPECT)

MAJOR OUTCOMES CONSIDERED

- Sensitivity and specificity of diagnostic tests
- Effectiveness of treatments for relief of pain and symptoms

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Ranking by quality within type of evidence:

a. High Quality
b. Medium Quality
c. Low Quality

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

The guideline developers reviewed published cost analyses.

METHOD OF GUIDELINE VALIDATION

Not stated

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not applicable

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Initial Diagnosis and Treatment -- Head Injuries

The first priority for the head-injured patient is complete and rapid physiologic resuscitation.

Most minor injuries will regain normal consciousness in the field or emergency department, and if the patient has normal neurological findings on examination and neuroradiological studies when appropriate, he/she may be discharged home with close supervision for the initial twenty-four hours.

Sedation and neuromuscular blockade can be useful in optimizing transport of the head injury patient. However, both treatments interfere with the neurological examination.

Initial Diagnosis

In addition to a physical examination by a practiced practitioner, the following should be part of the process to determine the initial diagnosis in a head-injured patient:

Glasgow Coma Scale Score

The Glasgow Coma Scale (GCS) when performed in the emergency department may aid in predicting the level of traumatic brain injury. Individuals with mild traumatic brain injuries may have a normal score on the GCS. Serial GCS scores may be helpful when intoxication may be a factor.

Neurological Examination

A neurological examination and neuropsychological assessment should be performed by a qualified practitioner to evaluate central nervous system function and diagnose specific behavioral or cognitive deficits or disorders.

Imaging

Computed axial tomography (CT) is a well-established, non-invasive brain imaging x-ray study that should reveal the presence of blood, skull fracture, and/or

structural changes in the brain. It should be performed on all patients sustaining a transient neurologic deficit secondary to trauma.

Magnetic resonance imaging (MRI) scans are more sensitive than CT for detecting traumatic cerebral injury. Initially, MRI scans are clinically useful in the following situations to:

- Determine neurological deficits not explained by CT
- Evaluate prolonged interval of disturbed consciousness
- Define evidence of acute changes super-imposed on previous trauma or disease.

Lumbar Puncture

Lumbar puncture is a well-established diagnostic procedure for examination of cerebrospinal fluid (CSF) in neurological disease and injury. The procedure should be performed by qualified and trained physicians under sterile conditions.

Indications for lumbar puncture:

- Neurological disease and injury with no radiographic evidence of extra-axial hemorrhage, mass effect, or impending brain herniation
- With suspected or known increased intra-cranial pressure, lumbar puncture should be preceded by fundoscopic examination and by a CT scan or MRI.
- Adult patients with headache exhibiting signs of increased intracranial pressure including papilledema, absent venous pulsations on funduscopic examination, altered mental status, or focal neurologic deficits should undergo a neuroimaging study before having a lumbar puncture.

Contraindications for lumbar puncture:

- Acute trauma to the spinal column
- Certain infections
- Increased intracranial pressure due to space occupying lesions
- Some coagulation disorders or defects
- Cutaneous infections in the region of the puncture site
- If CT or MRI shows intracerebral, intra-ventricular, or subarachnoid blood, lumbar puncture should be withheld until neurological consultation is obtained.

Official Disability Guidelines (ODG) Return-To-Work Pathways

Concussion

Mild concussion: 3-7 days

Severe concussion, non-cognitive/modified work: 14 days to indefinite

Severe concussion, cognitive work: 84 days to indefinite

Skull fracture Without brain injury, clerical/modified work: 7 days Manual work: 21 days Heavy manual work: 49 days (See ODG Capabilities & Activity Modifications for Restricted Work under "Work" in Procedure Summary)

Initial Management

Hypotension

Hypotension (systolic blood pressure [SBP] <90 mm Hg) or hypoxia (apnea, cyanosis, or an oxygen (O2) saturation <90% in the field or a PaO2 <60 mm Hg) must be monitored and scrupulously avoided, if possible, or corrected immediately in severe traumatic brain injury patients.

- Mean arterial blood pressure should be maintained above 90 mm Hg through the infusion of fluids throughout the patient's course to attempt to maintain cerebral perfusion pressure (CPP) greater than 60 mm Hg.
- Patients with a Glasgow Coma Scale (GCS) score less than 9, who are unable to maintain their airway or who remain hypoxemic despite supplemental O2, require that their airway be secured, preferably by endotracheal intubation.

Hypertension

If there are signs of transtentorial herniation or progressive neurological deterioration (not attributable to extracranial explanations) assume that intracranial hypertension is present and treat it aggressively. Hyperventilation should be rapidly established.

Hyperventilation

In the absence of increased intracranial pressure (ICP), avoid unnecessary or prophylactic hyperventilation (PaCo2 less than 26), in the first 24-hours after injury.

Hyperventilation therapy may be necessary for brief periods when there is:

- Acute neurologic deterioration not attributable to systemic pathology (i.e., hypotension)

Hyperventilation therapy may be necessary for longer periods if there is:

- Intracranial hypertension refractory to sedation
- Paralysis
- Cerebrospinal fluid drainage

- Osmotic diuretics

Intracranial Pressure (ICP)

Intracranial pressure should be monitored in all patients with severe head injury following an abnormal CT scan. Abnormal findings may include one or more of the following:

- Hematomas
- Contusions
- Edema
- Compressed basal cisterns

In the absence of abnormal CT findings, ICP should also be monitored if two or more of the following are noted at admission:

- Patient is over 40 years old
- Unilateral or bilateral motor posturing
- Systolic blood pressure of less than 90 mm Hg

Interpretation and treatment of ICP should be corroborated by frequent clinical examination and CPP data. In general, it is desirable to:

- Maintain ICP less than 20 to 25 mm Hg.
- Maintain mean arterial pressure (MAP) above 90.
- Maintain cerebral perfusion pressure (CPP) (MAP at head level minus ICP) at or above 70 mm Hg.

Mannitol in doses ranging from 0.25 g/kg to 1 g/kg body weight is effective for control of raised ICP after severe head injury.

Mild or moderate head injury does not need to be monitored for ICP unless the conscious patient has traumatic mass lesions.

Cerebral Perfusion Pressure (CPP)

Cerebral perfusion pressure (CPP) should be maintained at a minimum of 60 mm Hg. In the absence of cerebral ischemia, aggressive attempts to maintain cerebral perfusion pressure above 70 mm Hg with fluids and pressors should be avoided because of the risk of adult respiratory distress syndrome.

Nutrition

Nutritional support should be aggressively initiated as soon as practicable. Preferable route is jejunal by gastrojejunostomy.

Anticonvulsants

Anticonvulsant treatment may be used to prevent early posttraumatic seizures in the high-risk individual, and are usually administered for one week in those with intracranial hemorrhage.

Prevention of early seizures has no statistically significant impact on long-term outcome or the development of late seizures or chronic epilepsy although the prevention of early seizures usually helps to reduce seizure-associated complications during acute management.

Operative Procedures

Craniectomy

Recommended for diffuse brain swelling, midline shift, and/or elevated ICP refractory to medical management and not fully alleviated by evacuation of mass lesion/hematoma (or in the absence of mass lesion/hematoma) -- (bone flap stored in freezer, or in the individual's abdominal wall).

Craniotomy

If there is immediate onset of total facial paralysis or if the electroneuronography (EnoG) shows greater than 90% degeneration of the facial nerve, exploration of the path of the facial nerve is indicated. This usually involves a middle fossa craniotomy and mastoidectomy in order to completely decompress the facial nerve.

ODG Return-To-Work Pathways

Without neurologic deficit, medical treatment: 14 days

Aneurysmectomy, clerical/modified work: 28 days

Aneurysmectomy, manual work: 42 days

Craniectomy, clerical/modified work: 28 days

Craniectomy, manual work: 42 days

Craniotomy, clerical/modified work: 28 days

Craniotomy, manual work: 42 days

Long-term Management

Postconcussion Syndrome

Approximately 38% of patients who sustain head trauma characterized by a brief disturbance of consciousness and clinically unremarkable neuroradiologic findings meet International Classification of Diseases 10th edition (ICD-10) diagnostic criteria for postconcussion syndrome (PCS). Symptoms could involve complaints of irritability, fatigue, headache, difficulty concentrating, dizziness and memory problems. Anxiety and depression are also frequently present, especially later in its course.

Although PCS has often been thought to reflect a psychological response to injury, there is considerable recent evidence to suggest that it is primarily a physiologic disturbance. For most individuals, treatment consists primarily of education of the patient and his/her family, along with supportive counseling regarding emerging problems at work or at home. A subgroup of patients, however, may require psychopharmacologic intervention.

Widely accepted treatments for post-traumatic headache may include, but are not limited to, interdisciplinary treatment, pharmacology, joint manipulation, physical therapy, massage, acupuncture, biofeedback, psychotherapy, and diet. These procedures should only be continued if functional gains are documented.

Electroencephalography

Electroencephalography (EEG) is not generally indicated in the immediate period of emergency response, evaluation, and treatment. Following initial assessment and stabilization, the individual's course should be monitored. If during this period there is failure to improve, or the medical condition deteriorates, an EEG may be indicated to assist in the diagnostic evaluation.

Physical Therapy

Patient rehabilitation after traumatic brain injury is divided into two periods: acute and subacute. In the beginning of rehabilitation, physical therapist evaluates patient's functional status; later he uses methods and means of treatment and evaluates effectiveness of rehabilitation. Early verticalisation is very important for patients with coma. Physical therapy consists of prevention of complications, improvement of muscle force, and range of motions, balance, movement coordination, endurance, and cognitive functions. Early rehabilitation is necessary for traumatic brain injury patients and use of physical therapy methods can help to regain lost functions and to come back to the society.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

During the comprehensive medical literature review, preference was given to high quality systematic reviews, meta-analyses, and clinical trials over the past ten years, plus existing nationally recognized treatment guidelines from the leading specialty societies.

The type of evidence associated with each recommended or considered intervention or procedure is ranked in the guideline's annotated reference summaries.

Ranking by Type of Evidence:

1. Systematic Review/Meta-Analysis
2. Controlled Trial-Randomized (RCT) or Controlled
3. Cohort Study-Prospective or Retrospective
4. Case Control Series
5. Unstructured Review
6. Nationally Recognized Treatment Guideline (from www.guideline.gov)
7. State Treatment Guideline
8. Foreign Treatment Guideline
9. Textbook
10. Conference Proceedings/Presentation Slides

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

These guidelines unite evidence-based protocols for medical treatment with normative expectations for disability duration. They also bridge the interests of the many professional groups involved in diagnosing and treating work-related head trauma or headaches.

POTENTIAL HARMS

Not stated

CONTRAINDICATIONS

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Contraindications for lumbar puncture:

- Acute trauma to the spinal column
- Certain infections
- Increased intracranial pressure due to space occupying lesions
- Some coagulation disorders or defects
- Cutaneous infections in the region of the puncture site
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IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Work Loss Data Institute. Head. Corpus Christi (TX): Work Loss Data Institute; 2006. 133 p. [152 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006

GUIDELINE DEVELOPER(S)

Work Loss Data Institute - Public For Profit Organization

SOURCE(S) OF FUNDING

Not stated

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available to subscribers from the Work Loss Data Institute Web site.

Print copies: Available from the Work Loss Data Institute, 169 Saxony Road, Suite 210, Encinitas, CA 92024; Phone: 800-488-5548, 760-753-9992, Fax: 760-753-9995; www.worklossdata.com.

AVAILABILITY OF COMPANION DOCUMENTS

Background information on the development of the Official Disability Guidelines of the Work Loss Data Institute is available from the Work Loss Data Institute Web site.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on April 6, 2006. This summary was updated by ECRI on August 29, 2006, following the U.S. Food and Drug Administration advisory on Triptans, SSRIs, and SNRIs.

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DISCLAIMER

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Readers with questions regarding guideline content are directed to contact the guideline developer.

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